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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2007*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19 and 22-40* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19 and 22-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 September 2007* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *19 September 2007*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

1.   The amendment filed 9/19/07 has been received and considered. Claims 20 and

21 are cancelled. Claims 1–19 and 22–40 are presented for examination.

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because:

3.   As to Figure 1, the newly added reference character "25" is not mentioned in the

description.

4.   Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to

the specification to add the reference character(s) in the description in compliance with

37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the

application. Any amended replacement drawing sheet should include all of the figures

appearing on the immediate prior version of the sheet, even if only one figure is being

amended. Each drawing sheet submitted after the filing date of an application must be

labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37

CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be

notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Claim Objections

5.   Claim 1 line 11 refers to "population of variables", would be better as "population

of predictor variables" to avoid any possible antecedent issues.

6.   Claim 4 line 2 refers to "of predictor", would be better as "of potential predictor" to

avoid any possible antecedent issues.

7.   Claim 5 line 3 refers to the term "a third predetermined level of significance".

Term raises indefiniteness issues; since its parent claim, claim 1, lacks "a second

predetermined level of significance". Claim 3, however, has "a second predetermined

level of significance".

Claim Rejections - 35 USC § 103

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103 that

form the basis for the rejections under this section made in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

10.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

11.   Claims 1–19 and 22–40, are rejected under 35 U.S.C. 103(a) as being

unpatentable over by Cabena et al., (Cabena hereinafter), Intelligent Miner for Data

Applications Guide (see IDS dated 12/18/06), taken in view of Harrison, (Harrison

hereinafter), An Intelligent Business Forecasting System (see IDS dated 12/18/06).

12.   As to claim 1, Cabena discloses a machine-based method comprising in

connection with a project in which a user generates a predictive model based on

historical data about a system being modeled (see chapter 1.5.1, Pages 9-11): selecting

variables having at least a first predetermined level of significance from a pool of

potential predictor variables associated with the data, to form a population of predictor

variables (see page 101, 2nd and 3rd paragraphs), extending the population of predictor

variables to include non-linear interactions of variables and extending the population of

predictor variables to include linear and non-linear extensions with remaining previously

excluded variables (see page 93, 2nd paragraph), generating a possible model of the

extended population of variables using a subsample of the data by the model

generation method (see "Feature Selection" and "Train and Test" in page 95),

determining whether the possible model generalizes to the data other than the

subsample (see page 101, last paragraph), applying the possible model to all of the

data to generate a final model, cross-validating the final model using random portions of

the data (see page 97, last paragraph), and interacting with the system being modeled

based on the final model (see "To ensure that the model has not overfit the data and to

assess the model performance against a data set that has the same characteristics as

the application universe, the model should be executed against the test data in test

mode" in page 102, 1st paragraph, lines 1–5 and "After having iteratively improved the

models, you chose the best model" in page 102, 3rd paragraph, line 1).

13.   While Cabena discloses generating a predictive model based on historical data

about a system being modeled, Cabena fails to disclose automatically selecting a model

generation method from among a set of available model generation methods to match

characteristics of the historical data.

14.   Harrison discloses automatically selecting a model generation method from

among a set of available model generation methods to match characteristics of the

historical data (see page 233, col. 2, next to last paragraph, last 7 lines).

15.   Cabena and Harrison are analogous art because they are both related to

predictive modelling.

16.   Therefore, it would have been obvious to one of ordinary skill in this art at the

time of invention by applicant to utilize the automatic model selection of Harrison in the

method of Cabena because Harrison explore the possibility of the integration of expert

systems technology with a forecasting decision support system (see page 229, col. 1,

lines 1–4), and as a result, Harrison reports that testing of his prototype shows that the

system is useful for managers who have no forecasting technique and computing

background and want to improve their decision making by means of quantitative

forecasting (see page 235, col. 2, next to last paragraph).

17.   As to claim 2, Cabena discloses a method also including displaying information

to the user of the size of the pool of predictor variables (see "Visualizations with only

one or two regions" in page 101, 3rd paragraph, line 2).

18.   As to claim 3, Cabena discloses a method also including enabling a user to point

and click to reduce or extend the size of the pool of predictor variables, retaining only

predictor variables having at least a second predetermined level of significance (see

"remove the strong variables from the chosen input fields and split the data into multiple

files based on the segmentation by the strong variables as indicated by the tree" in page

101, 3rd paragraph, lines 4–7).

19.   As to claim 4, Cabena discloses a method in which the user is enabled to invoke

an automatic process to select a class of models most suitable to the pool of predictor

variables associated with the data (see page 118, last paragraph).

20.   As to claim 5, Cabena discloses a method in which the user is enabled to point

and click to adjust the model selection criterion to retain only the variables having at

least a third predetermined level of significance for the target goal (see page 133, 1st

paragraph).

21.   As to claim 6, Cabena discloses a method in which the user is enabled to point

and click to cause display of information about the model performance (see "algorithm

outputs a summary screen showing the mean and root mean square error" in page 100,

7th paragraph and/or page 101, last paragraph, lines 1–3).

22.   As to claim 7, Cabena discloses a method in which the information about the

model performance includes at least one of: a statistical report card, a link to a statistical

report chart, a lift chart, a link to the lift chart (see page 101, last paragraph, lines 1–5

and page 105, 1st and 2nd paragraphs), a response comparison chart for each decile for

each predictor variable in the model, or a link to the response comparison chart.

23.   As to claim 8, Cabena discloses a method in which invocation of the link to the

statistical report card causes display of the statistics of model performance (see

"algorithm outputs a summary screen showing the mean and root mean square error" in

page 100, 7th paragraph).

24.   As to claim 9, Cabena discloses a method in which invocation of the link to the lift

chart causes display of a non-cumulative lift chart (see page 101, last paragraph, lines

1–5 and page 105, 1st and 2nd paragraphs).

25.   As to claim 10, Cabena discloses a method in which invocation of the link to the

response comparison chart causes display of a response chart for each predictor

variable in the model for each segment of interest (see "Method 2" in page 119, 3rd

paragraph).

26.   As to claim 11, Cabena discloses a method in which a user is enabled to choose

interactively at least one performance criterion change or transformation or interaction

of variables to improve a fit of the model (see "Maximum tree depth" in page 97, 4th

paragraph).

27.   As to claim 12, Cabena discloses a method also including a enabling a

determination whether the model generalizes to the data other than the subsample,

and, if so, applying the possible model to all of the data to generate a final model, and cross-validating the final model using random portions of the data (see page 97, last paragraph).

28.   As to claim 13, Cabena discloses a method in which the user is enabled to select at least one validation dataset and invoke a model process validation method (see "Value Prediction with RBF" in pages 97 and 98).

29.   As to claim 14, Cabena discloses a method in which the user is enabled to point and click to cause display of information about the model process validation (see "Results Visualization" in page 100, 6th paragraph).

30.   As to claim 15, Cabena discloses a method in which the information about the model process validation includes at least one of: a statistical report card, a link to a statistical report chart, a cumulative lift chart, a link to the cumulative lift chart and a non-cumulative lift chart, a link to the non-cumulative lift chart (see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs).

31.   As to claim 16, Cabena discloses a method in which the user is enabled to select at least one machine automated model development process applied to the entire dataset for a validated model process (see "Network architecture" in page 99, 3rd paragraph).

32.   As to claim 17, Cabena discloses a method in which the user is enabled to point and click to cause display of information about the performance of the validated model process applied to the entire set of historical data (see page 101, last paragraph, lines 1–3).

33.   As to claim 18, Cabena discloses a method in which the information about the

model performance for two independent data subsets, the independent data subsets

being randomly selected from the historical data, includes at least one of: a statistical

report card, a link to a statistical report chart, a cumulative lift chart, a link to the

cumulative lift chart and a non-cumulative lift chart, a link to the non-cumulative lift chart

(see page 101, last paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs).

34.   As to claim 19, Cabena discloses a method in which the invocation of the link to

the statistical report card causes display of the statistics of model process validation

(see "algorithm outputs a summary screen showing the mean and root mean square

error" in page 100, 7th paragraph and/or page 101, last paragraph, lines 1–3).

35.   As to claim 22, Cabena discloses a method in which the final model and the

model process validation results are stored persistently (see "Processing settings

objects always … create output data in a database" in page 24, "Processing Functions",

3rd paragraph, lines 1–2).

36.   As to claim 23, Cabena discloses a method also including enabling the user to

observe the number of predictor variables available for the model (see "remove the

strong variables from the chosen input fields and split the data into multiple files based

on the segmentation by the strong variables as indicated by the tree" in page 101, 3rd

paragraph, lines 4–7).

37.   As to claim 24, Cabena discloses a method in which a model method from a

library of model methods most suitable to modeling the historical data is automatically

selected (see page 11, 1st paragraph).

38.   As to claim 25, Cabena discloses a method also including enabling the user to observe the performance of the model by means of links to a plurality of statistical and graphical reports (see "Results Visualization" in pages 100 and 101).

39.   As to claim 26, Cabena discloses a method also enabling the user to select a means of validating the model development process (see "Value Prediction with RBF" in pages 97 and 98).

40.   As to claim 27, Cabena discloses a method also enabling the user to observe the performance of the model for a training subset and a validation subset of the historical data (see "algorithm outputs a summary screen showing the mean and root mean square error" in page 100, 7th paragraph and/or page 101, last paragraph, lines 1–3).

41.   As to claim 28, Cabena discloses a method also enabling the user to invoke at least one validated model development process to produce a final model enabling the use to observe the performance of the final model on at least two independent subsets, the independent subsets being randomly selected from the historical data (see page 101, last paragraph, lines 1–3).

42.   As to claim 29, Cabena discloses a method enabling the persisting of the final model and intermediate results to a project database (see "Processing settings objects always ... create output data in a database" in page 24, "Processing Functions", 3rd paragraph, lines 1–2).

43.   As to claim 30, Cabena discloses a method enabling the final model to be applied to scoring at least one non-historical dataset wherein the propensity computed by the model is indexed by the score (see page 11, 2nd paragraph).

44.   As to claim 31, Cabena discloses a machine-based method comprising in

connection with a project, generating a predictive model based on the historical data

(see chapter 1.5.1, Pages 9-11), displaying to a user a lift chart (see page 101, last

paragraph, lines 1–5 and page 105, 1st and 2nd paragraphs), monotonicity (see page

101, last paragraph, last 3 lines and page 119, 2nd bullet from the bottom), and

concordance scores (see Chapter 1.5.1, Pages 9-11) associated with each step in a

step-wise model fitting process (see page 98, 2nd paragraph). While Cabena discloses

generating a predictive model based on historical data about a system being modeled,

Cabena fails to disclose automatically selecting a model generation method from among

a set of available model generation methods to match characteristics of the historical

data. Harrison discloses automatically selecting a model generation method from

among a set of available model generation methods to match characteristics of the

historical data about a system being modeled (see page 233, col. 2, next to last

paragraph, last 7 lines).

45.   As to claim 32, Cabena discloses a method also including enabling the user to

observe changes in the fit of the model as variables associated with the data are added

or removed from a predictor set of the variables (see "Maximum tree depth" in page 97,

4th paragraph).

46.   As to claim 33, Cabena discloses a method also including enabling the user to

terminate the fitting of the model when the fitting process reaches an optimal point (see

"Maximum number of passes" in page 98, 2nd paragraph).

47.   As to claim 34, Cabena discloses a machine-based method comprising receiving

from separate sources, sets of potential predictor and dependent variables representing

historical data about a system being modeled (see page 92, paragraphs 2–5), enabling

a user of a model generation tool to combine at least two of the dependent variables

from the sets of potential predictor and dependent variables (see "Okay Customer Set",

"Good Customer Set" and "Create Objective Variable" items in page 90, Fig. 46) to

generate a model to be used in interacting with the system being modeled (see "To

ensure that the model has not overfit the data and to assess the model performance

against a data set that has the same characteristics as the application universe, the

model should be executed against the test data in test mode" in page 102, 1st

paragraph, lines 1–5 and "After having iteratively improved the models, you chose the

best model" in page 102, 3rd paragraph, line 1).

48.   As to claim 35, Cabena discloses a method in which enabling the user to

combine the variables includes providing a user interface that enables the user to

identify the variables to be combined (see page 21, 1st paragraph).

49.   As to claim 36, Cabena discloses a method in which the system being modeled

comprises behavior of prospective or current customers with respect to products or

services of a company and the method also includes adjusting outcome variables to

normalize response rates across products or services with different response rates (see

page 90, 2nd line from the bottom to page 91, 2nd line).

50.   As to claim 37, Cabena discloses a method in which the system being modeled

comprises behavior of current customers with respect to retention of a current service or

product of a vendor and the method also includes adjusting variables to normalize

response rates across products or services with different response rates, using the

computed propensities as indices of the scores (see page 90, 2nd line from the bottom to

page 91, 2nd line).

51.   As to claim 38, Cabena discloses a method also comprising determining a

course of action to yield the most positive net present value outcome (see "the most

positive NPV outcome" as "increase its profitability" in page 32, 3rd paragraph).

52.   As to claim 39, Cabena discloses a method in which the determining includes

selection of a mix of channel (see page 30, last paragraph) and product combinations

(see "product associations" in page 32, 3rd paragraph).

53.   As to claim 40, Cabena discloses a method in which the determining includes

predicting retention in combination with response rate to predict net present value (see

page 28, 2nd paragraph).

Response to Arguments

54.   Applicant's arguments filed 9/19/07 have been fully considered, but they are not

persuasive.

55.   Regarding the IDS objections, deficiencies remain.

56.   About the information disclosure statement filed 5/27/05 and its failure to comply

with 37 CFR 1.98(a); Applicant was non-responsive, since no useful information was

provided.

57.   About the information disclosure statements filed 2/28/05, 5/27/05, 7/17/06, and

12/18/06 containing a large number of references submitted for consideration; the

Examiner requested the Applicant to identify any specific references, features, sections

or figures in the references cited which are believed to have particular significance in

the prosecution of this application or which are considered material to the patentability

of the pending claims. The Applicant replied "the applicant considers U.S. Patent

6,879,971 to Keeler and U.S. Patent 6,954,758 to O'Flaherty to be particularly relevant"

(see page 11, 2nd paragraph). Examiner notes that in the previous rejection Examiner

had already considered and made of record U.S. Patent 6,879,971 as pertinent to

applicant's disclosure.

58.   Regarding the drawing objections, one deficiency remains, all previous

objections withdrawn.

59.   Regarding the claim objections, the amendment corrected all deficiencies and

the objections are withdrawn.

60.   Regarding the rejections under 112, the amendment corrected all deficiencies

and those rejections are withdrawn.

61.   Regarding the rejections under 101, the amendment corrected all deficiencies

and the rejections are withdrawn.

62.   Regarding the rejection under 102. Applicant's arguments with respect to claims

have been considered but are moot in view of the new ground(s) of rejection. In the

instant rejection, Examiner has elaborated prior art disclosures of amended claims.

Conclusion

63.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

64.   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

65.   Examiner would like to point out that any reference to specific figures, columns

and lines should not be considered limiting in any way, the entire reference is

considered to provide disclosure relating to the claimed invention.

66.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-

2625. The examiner can normally be reached on 7:30AM - 4:00 PM.

67.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

68.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

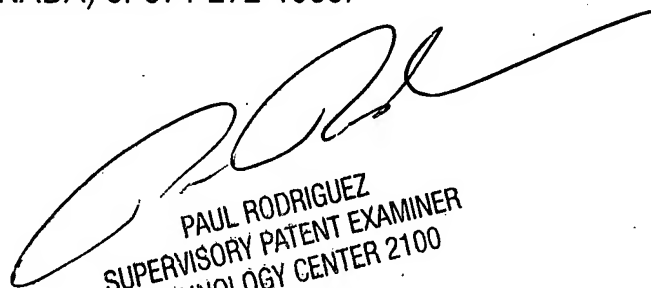published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***   10/22/07

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